

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all previous listings and versions of claims in this application.

1. (Currently Amended) A method of preparing a SiC surface of a semiconductor wafer to make it epi-ready which comprises:
annealing the wafer in an oxidizing atmosphere to condition the SiC surface;
treating the wafer surface to reduce surface roughness; and
polishing the treated and conditioned SiC surface of the wafer with an abrasive based on particles of colloidal silica in order to provide a wafer surface that is suitable for growing an epitaxial layer thereon.
2. (Canceled).
3. (Previously Presented) The method of claim 1 wherein the SiC surface layer is bonded to a semiconductor substrate.
4. (Original) The method of claim 1 wherein the annealing is conducted at a temperature of about 1000°C to about 1300°C.
5. (Currently Amended) A method of preparing a SiC surface of a semiconductor wafer to make it epi-ready which comprises:
annealing the wafer in an oxidizing atmosphere to condition the SiC surface; and
polishing the conditioned SiC surface of the wafer with an abrasive based on particles of colloidal silica in order to provide a wafer surface that is suitable for growing an epitaxial layer thereon. ~~The method of claim 4~~
wherein the annealing is conducted for about 1 hour to about 3 hours.
6. (Currently Amended) The method of claim 1 ~~which further comprises at least one of deoxidizing~~ the wafer surface is treated by a deoxidizing step or by applying ~~[[utilizing]]~~ an RCA (SC1, SC2) type chemical cleaning step prior to polishing.

7. (Original) The method of claim 6 wherein the wafer surface is deoxidized with hydrofluoric acid.

8. (Currently Amended) The method of claim 1 ~~further comprising wherein the~~ treating step comprises chemically cleaning the wafer surface ~~prior to polishing~~.

9. (Original) The method of claim 8 wherein the wafer surface is cleaned with hydrofluoric acid.

10. (Original) The method of claim 1 wherein the colloidal silica particles used for polishing the wafer surface include SYTON W30 type colloidal silica.

11. (Original) The method of claim 1 wherein the polishing is conducted with a polishing head that is rotated at about 10 rpm to about 100 rpm.

12. (Original) The method of the claim 11 which further comprises applying a pressure of about 0.1 bar to about 1 bar to the polishing head during rotation.

13. (Original) The method of claim 1 which further comprises polishing the wafer surface for about 15 minutes to about 30 minutes.

14. (Original) The method claim 1 wherein the polishing is conducted with an IC1000 type polishing pad.

15. (Currently Amended) A method of preparing a SiC surface of a semiconductor wafer to make it epi-ready which comprises:
annealing the wafer in an oxidizing atmosphere to condition the SiC surface;
polishing the conditioned SiC surface of the wafer with an abrasive based on particles of colloidal silica in order to provide a wafer surface that is suitable for growing an epitaxial layer thereon; and ~~The method of claim 1 further comprising~~
etching the wafer surface with ions prior to polishing.

16. (Original) The method of claim 1 wherein the polishing is conducted to make the wafer surface suitable for homoepitaxy or heteroepitaxy.

17. (Currently Amended) The method of claim 1 wherein the polishing is conducted to provide a surface roughness of less than 15 angstroms RMS.

18. (Original) The method of claim 1 which further comprises depositing an epitaxial layer upon the polished wafer surface.

19. (Currently Amended) The method of claim ~~[[19]]~~ 18 wherein the epitaxial layer comprises at least one of SiC, AlN, GaN, or AlGaIn.

20. (New) The method of claim 1 wherein the wafer is annealed under conditions sufficient to produce a surface roughness that is on the order of about 2 nm rms, the conditioned surface is treated to prevent crystallization of abrasive during the polishing step, and the polishing step is conducted to achieve a surface roughness that is on the order of about 3 Å rms.